



CHAPTER

# 4 4 The Next Principle' *Metaphysics A 3–4*, 984b8–985b22

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## Abstract

This chapter examines the way Aristotle describes in A 3–4 (984b8–985a29) the reasons and motivations, which, on his interpretation, lead his predecessors to introduce a new type of principle that could function as the efficient cause. By bringing in parallel texts from Physics I and On the Parts of Animals I, it is argued that, for Aristotle, the trajectory of the discovery of the truth is after all less deterministic than what the language of *Metaphysics A 3* might suggest. The paper aims to show, moreover, that what is discovered is not so much new types of Aristotelian causes but rather distinctions among types of principle.

**Keywords:** [contraries](#), [Nous/mind](#), [cosmos/cosmic order](#), [final cause](#), [material cause](#), [formal cause](#), [efficient cause](#), [homoiomers](#), [agent causation](#), [Eros](#), [chance and spontaneity](#), [dualism \(of principles\)](#), [atomists](#)

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At the end of chapter 4, Aristotle concludes the first larger block of the survey of his predecessors' views about causes and principles with the following words: 'Regarding the two causes, then, as we say, the inquiry seems to have been pursued thus far by our predecessors.'<sup>1</sup> As he explains in the first half of chapter 3, one of these two, the material cause, has been on the scene since the time of the first philosophers, or possibly even earlier. It is, however, only at a second stage that thinkers started to consider more seriously another one, the efficient cause, and posited another type of principle, distinct from the material substrate, that can function as this second cause. The main bulk of the stretch of text discussed in the present paper is about this development.<sup>2</sup> One principal interest of the  text is exactly the way in which Aristotle describes the arrival of a new phase in the history of *sophia*, and specifies the motivations and forces that led thinkers to focus on another cause and to introduce a different kind of principle.

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Aristotle's talk in A 3–4 about the compelling forces that guided research in the direction of the second cause and the second kind of principle may suggest that the trajectory of the discovery of the truth, and the passage from the first to the next cause in particular, are deterministic. We shall see, however, that several considerations, both from *Metaphysics A* and from other Aristotelian texts, mitigate this picture and indicate that the progression from one cause to the next is not after all so linear, plain, and well-determined. As Aristotle says, the first moves of philosophy are tottering – and, we might add, when one totters, it is not immediately evident in which direction one will take one's next step. Aristotle repeatedly censures the incoherence and lack of precision of early theories – but the incoherence and lack of precision of these theories mean also that each stage of the inquiry presents the possibility of more than one line of development. Questions and *aporiai* that seem to focus on one of the four causes might not lead to the introduction of a distinct principle, proper for the relevant causal role, whereas the introduction of a new principle might be prompted by questions that could be answered by more than one of the four causes.

Another, related, point I would like to show is this. According to textbook presentations of Aristotle's narrative in *Metaphysics A*, the first philosophers posited the material cause and principle, later philosophers added the efficient cause, and so forth. But such presentations are crude to the point of being misleading; they are crude because they suggest that the theories of the first philosophers worked with a proper, bona fide material principle, even if they lacked the other three, then thinkers of the next generations added the efficient cause – again a proper, bona fide efficient cause – and so forth. Yet, as I will try to argue, Aristotle's point is precisely that you cannot have any kind of theory, not even an Ionian monist theory, which operates with the material principle only – I mean that operates exclusively with a proper, bona fide material principle. The function of the principle (or principles) of such a theory might resemble most to the material cause, but, willy-nilly, it must necessarily take some of the roles of the efficient cause, and also that of the formal cause. Similarly for the efficient cause, you simply cannot have an intelligible account which works only with the material and efficient causes; the theory must incorporate at least ↪ some aspects of formal and final causation. Indeed, the imprecision and incoherence of these theories stems to a large extent from the fact that they have to attribute too many causal roles, without properly distinguishing them, to their insufficient number of principles. This is why they cannot have any principles that could properly and clearly take on the function of any of the four causes. At the end of the day, the theory of the four causes, properly speaking, turns out to be an all or nothing affair.

The structure of the text is as follows:

1. The inadequacy of previous theories 984<sup>b</sup>8–15
2. The next principle(s) 984<sup>b</sup>15
  - a. *Nous* 984<sup>b</sup>15–22
  - b. A possible antecedent: *erôs* 984<sup>b</sup>22–31
  - c. The causes of good and bad things: love and strife 984<sup>b</sup>31–985<sup>a</sup>10
3. Critical assessment of these suggestions 985<sup>a</sup>10–29
  - a. General remarks 985<sup>a</sup>10–18
  - b. The criticism of Anaxagoras and Empedocles 985<sup>a</sup>18–29
4. Empedocles' principles 985<sup>a</sup>29–985<sup>b</sup>4
5. The principles of Leucippus and Democritus 985<sup>b</sup>4–20
6. Conclusion 985<sup>b</sup>20–22

I shall go through these sections one by one, treating some of them relatively rapidly, whereas others will lure me into more lengthy, and sometimes avowedly speculative, discussions.

## 1. The inadequacy of previous theories

[1] After these men and the principles of these kinds, as these latter were insufficient to generate the nature of beings, men were once again compelled by the truth itself, as we said, to inquire into the next principle. [2] For surely it is not likely either that fire or earth or any such element should be the cause of some things being in a good and fine state and other things coming to be in such a state or that those people thought it to be the case. [3] Nor again could it be right to entrust so great a matter to spontaneity and chance. (984<sup>b</sup>8–15)

The passage starts with a double backward reference: a recurrence or repetition of something that already happened earlier (πάλιν), and was also mentioned ↪ earlier (ᾧσπερ εἶπομεν). Even though the relevant passage is outside my assignment, we need to have a closer look at what happened in that previous episode to understand what is described in our text.<sup>3</sup> The reference is to 984<sup>a</sup>17–29, where Aristotle tells that the *pragma*, the facts themselves, most importantly the very evidence of change, 'showed the way and joined in forcing thinkers to investigate' (αὐτὸ τὸ πρᾶγμα ᾧδοποίησεν αὐτοῖς καὶ συνηνάγκασε ζητεῖν) the cause of change: 'why does it happen and what is the cause?' (διὰ τί τοῦτο συμβαίνει καὶ τί τὸ αἴτιον;). This is already presented as

an advance compared to the earliest stage in which thinkers only occupied themselves with the material cause; yet at the second stage, when the *pragma* already forced them to amend their theories, thinkers still tried to answer the questions concerning the cause of change in terms of the material principle(s). However, an adequate answer to these questions, from an Aristotelian perspective, can only be given by positing an independent principle, distinct from the material substrate. The introduction of that new kind of principle happened only at the third stage, announced in our passage, when ‘men were once again compelled by the truth itself.’ The formulation of the backward reference strongly suggests that the two personified powers, ‘the *pragma* itself’ and ‘the truth itself’, if not identical, function at least as two connected aspects of the same force. The image thus appears to be that this force had to make two successive attempts to drive people to posit ‘the next principle.’ But does this mean that the force exerted by ‘the *pragma* itself’ had no effect and was in vain in the first case?

Let us see what happened in the first episode. The pressure came from the evidence of change and led to the following problem: if you think in terms of one type of principle, the material substratum, it is not clear how you will be able to account for change: ‘For at least the substratum itself does not make itself change’ (984<sup>a</sup>21). The early monists and the Eleatics reacted to this problem in two different ways. The Eleatics apparently understood that there is a real difficulty here, but threw in the towel – ‘as though defeated by this search for the second cause’ – and sacrificed change. They denied the very evidence which was to guide their research. But this is clearly a dead end. It might seem, on the other hand, that the earlier thinkers, who thought that the material principle was one, were not even much impressed by the problem: they ‘were not at all annoyed by themselves’ (οὐθὲν ἐδυσχέραναν ἑαυτοῖς). They did not deny change, but were not interested in specifying its source. Or they contented themselves with assuming that matter in and of itself is dynamic, and there is no need for anything else to make it move. Better off were those among these ↪ early thinkers who allowed distinctions within the material substrate, for they could then assign motor force to one of the elements or contraries: fire or the hot could henceforth play the role of that what moves their opposites, the cold or the other elements.

At this point, the first book of the *Physics* provides an important supplementary clue.<sup>4</sup> For in *Phys.* 1 4–5 Aristotle argues that all those early thinkers who tried to account for change referred to the contraries in their (attempted) explanations. This is true not only of those who posited more than one material principle, and for whom contraries were more obviously part of the original furniture of the world, but also of those who started out with one body, and used rarefaction and condensation to generate the multitude of things. Indeed, even Parmenides accepted opposites when he wanted to be part of the game, and treated fire and earth – proxies for the opposites of hot and cold – as principles.<sup>5</sup> Aristotle continues by saying that the role of opposites in change is indeed crucial, for it is by reference to them that we can understand that changes are not random but ordered. And then he comes back to the point of general agreement:

Up to this point we have practically had most of the other writers on the subject with us, as I have said already; for all of them identify their elements, and what they call their principles, with the contraries, even if they give no reason for doing so, *but compelled as it were by the truth itself* (ὥσπερ ὑπ’ αὐτῆς τῆς ἀληθείας ἀναγκασθέντες). (*Phys.* 1 5, 188<sup>b</sup>26–30)

The verbal echo is striking. And the relevance of the contraries is confirmed by the end of the passage dealing with the first episode in *Met.* A 3. Aristotle says there that perhaps Parmenides also had two principles (984<sup>b</sup>3–4) – indeed, a little later at *Met.* A 5, 986<sup>b</sup>27–987<sup>a</sup>2, he once again uses the image of the compelling force and states that Parmenides was forced to follow the phenomena (ἀναγκαζόμενος δ’ ἀκολουθεῖν τοῖς φαινομένοις, 986<sup>b</sup>31) and thus to posit two contrary principles, fire and earth. More generally, all those who tried to answer the question concerning the cause of change, referred to the contraries among the elements or within one principle. The evidence of *Phys.* 1 5, together with these remarks, strongly suggests that even if this driving and directing force did not manage to compel thinkers to introduce a new type of principle in the first ↪ case, it did not act in vain: it led thinkers to include the distinction between contraries in their theories.

It is remarkable, however, that Aristotle develops the story in two different directions in the first book of the *Physics* and in *Metaphysics* A respectively. In *Metaphysics* A 3, the distinction between the hot and the cold, or fire and the other elements, is mentioned as a harbinger of the realisation that there must be an independent principle that can function as the source of motion and change. Even though these thinkers did not go as far as positing a different principle for that role, yet armed with the distinction between the

opposites, they singled out one of the contraries or one of the elements – typically the hot or fire – and treated it as that which has the power to move other things (χρῶνται γὰρ ὡς κινητικὴν ἔχοντι τῷ πυρὶ τὴν φύσιν).<sup>6</sup>

In the *Physics*, by contrast, Aristotle explains that even though these early thinkers did not attain much conceptual clarity on these questions – they did not give a reason why exactly the contraries are important, and what their relation to the substrate is, which of course means that they did not get a clear conception of the substrate either – they were still definitely on to something important when they treated the contraries as principles; this is a promising route because the contraries do indeed have a central role in an adequate account of change. Yet, in the context of the first book of the *Physics*, if one follows up this route systematically, what one eventually arrives at is not the distinction between the material substrate and the efficient cause, but the distinction between matter and form (and privation).

Aristotle's formulations in *Metaphysics* A 3 gives the impression that once people had an inkling of the first cause, the material substrate, the puzzles and ensuing research compelled by the evidence of change inevitably led towards the recognition of the efficient cause. Yet the close parallel with the *Physics* shows that there were at least two things going on at the same time: not only the problem of the efficient cause as such, but also more generally the role of contraries in an account of change, and thereby a dim hunch about the form as well. These early thinkers had only one type of principle, but the questions prompted by the facts drove them to make certain distinctions within the material principle. These distinctions were not introduced with any conceptual clarity, and were supposed to account for many – indeed too many – aspects of change, including its regularity, its source, and so forth. In the distinction between the opposites, different types of causes were mixed in an inchoate manner and can thus be interpreted as the prefiguring of different lines of later developments. In *Metaphysics* A 3, Aristotle speaks only about the efficient cause in describing what happened in the first episode because this is the direction in which his story will continue. Yet it seems that at that point, at the end of the first episode, it was not all that clear what 'the next cause' or 'next principle' will be.<sup>7</sup>

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The first episode, then, ends with people who were content with their partial results, were 'not at all annoyed by themselves,' so not sufficiently motivated to continue the search, and others who got defeated, and denied change. Surely, a new impetus was needed to get things moving. This new impetus came from a refocusing. The truth that pressed itself on thinkers and compelled them to continue the search in the second episode was not merely the fact of motion and change, but the inherent goodness and fineness of processes and results: 'For surely it is not likely either that fire or earth or any such element should be the cause of some things being in a good and fine state and other things coming to be in such a state or that those people thought it to be the case' (984<sup>b</sup>11–14). The formulation picks up the end of the last paragraph, tacitly accepting that one of the contrary elements has motive force. Let us assume, at least for the sake of argument, that fire can move the other elements, and even that the contraries guarantee that changes will not be completely random – yet all these distinctions within the material substrate will not be able to account for goodness, beauty, and fineness. This move is based on the assumption that people recognise not simply that there is change, but also that there is goodness and fineness in those things and processes that have hitherto been ascribed to the material principle and to the motive force assumed to be inherent in the material principle. Apparently the mere evidence of change, and the questions concerning the cause of change prompted by it, were not sufficiently pointed and powerful to make people acknowledge the need to posit an independent principle. For this to happen, an emphasis on the good and the fine was required. This new focus on the good and the fine, however, already indicates that those whose research was motivated by the ensuing puzzles were concerned not merely, or not even primarily, with the source of change, i.e. the efficient cause, as such. The guiding puzzle is not why things move or change, but rather why things are in a good and fine state, or change towards a good and fine state.

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The two episodes are construed around two *aporiai* prompted by 'the truth' and 'the *pragma*': 'How can one account for change if one posits one (kind of) principle?' and 'How to account for goodness and fineness in the world if one posits only the elements and the contraries?' The idea presumably is that thinkers become alive to different, although connected, aspects of reality in these successive phases. They realised that these phenomena and aspects of reality require explanation, and this is what guided their research and led to their (partial) results. In this sense, the story related in A 3–4 provides powerful illustration of the claim made in A 2 that *aporiai* keep research going. But the point is phrased in a much more conspicuous and dramatic way: 'the *pragma* itself' and 'truth itself' are presented in metaphorical expressions as causally active powers that compel, motivate, and give direction to the process. In some sense they come to exemplify what the search in this story is about: that which moves things towards the goal.

## 2. The next principle(s)

### a. *Nous*

[1] When someone said, then, that *nous* is present, just as in animals, also in nature as the cause of the world-order and the whole arrangement, he appeared like a sober man compared with the random talk of his predecessors. [2] We know that Anaxagoras got engaged with giving such accounts in an explicit way, but Hermotimus of Clazomenae is charged with speaking thus earlier. [3] Those who took up the matter in this way thus stated that the cause of the fine state of things is a principle of beings, and at the same time that sort of cause from which the motion for beings stems. (984<sup>b</sup>15–22)

As [1] explains, the most momentous advance in the second episode was based on two connected moves. Firstly, not merely to concentrate on individual phenomena (hot and the cold, the elements, living beings, beds and statues), and to examine how change occurs in or through them, but to take a global view and to focus on the world-order. Secondly, to account for the good and the fine in the cosmic arrangement by reference to the purposefulness and rationality exhibited by animals.

p. 113 As a matter of fact, it is not entirely obvious that things, taken individually or even in larger contexts around us, are in such a manifestly good and fine state or that things always change for the better. Yet, if there is a sphere where things appear to go well, and always well, and where beauty is patently manifest – this is the heavenly sphere. So even if one tried to account for different complex processes and phenomena by exclusive reference to the constitutive matter, even – quite implausibly – up to the natural constitution of living beings, the heavens exhibit orderliness at a massively higher level. As Aristotle writes in *On the Parts of Animals* 1 1, ‘Certainly, the ordered and definite (τὸ γοῦν τεταγμένον καὶ τὸ ὀρισμένον) are far more apparent in the heavens than around us, while the fluctuating and random are more apparent in the mortal sphere’ (641<sup>b</sup>18–19, trans. Lennox). It is by taking the heavens and the general cosmic order as the primary explananda that the puzzle about the source of beauty and good becomes especially pressing.<sup>8</sup> Indeed, Aristotle thinks, as he makes clear in the first chapter of the *Meteorology*, that one should start the detailed study of nature with the celestial realm to turn in the next step to the study of mortal living beings.<sup>9</sup> The study of the heavens thus has methodological priority. Remarkably, even though Aristotle said in *Met. A* 2 that the sight of the heavens had been a constant object of wonder, our passage about the introduction of *nous* is the first appearance of the cosmic perspective, a focus on the overall cosmic order, in the historical survey of *Met. A*. If so, the ‘sobriety’ of the one or the ones who introduced this kind of principle must refer not only to the content of their theory, but also to the method by which they proceeded – it is not by chance that this is what eventually led to the most important advance in the history of ‘the next principle’.

Yet, even if the order and beauty of the heavens are in a different league than any order and beauty manifest in the world around us – so it is this evidence that puts the most pressure on the inquirer to come up with a new principle – it still remains true that when we try to solve the puzzle and account for the supreme order in the heavens, our best bet is to refer to those things whose behaviour shows the highest level of order and arrangement in the sublunary world. And these are the animals, and human beings in particular, and that what is specific to these beings, making their behaviour ordered and rational. This is the answer to the puzzle mentioned in the previous section: it is not the wood that produces the bed, and not the bronze that produces the statue, nor even the hot or the fire, but the art of rational human beings. This double movement is present also in that passage of *PA* 1 1 that I have just referred to. In the lines immediately preceding the sentence quoted above, Aristotle writes: ↵

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For it is apparent that, just as in artefacts there is the art, so in things themselves there is an other such principle and cause which we have – as we do the hot and the cold – from the universe. This is why it is more likely that the heaven has been brought into being by such a cause – if it has come to be – and to be due to such a cause, than for mortal animals. (641<sup>b</sup>12–18, trans. Lennox, modified)

The argument is very condensed, but we can supply the details on the basis of those texts that, most plausibly, constitute the background of it: Xenophon’s *Memorabilia* 1 4.8, and Plato’s *Philebus* 28c6–30d. The clue is, of course, the remark that we have the cause in question from the universe (ἐκ τοῦ παντός) just as we have some elemental powers, the hot and the cold.<sup>10</sup> In both the *Memorabilia* and the *Philebus* the cause that is present both in us and in the universe at large, making us rational, and the cosmos well-ordered, is *nous*. Now, what makes the connection between these texts and *PA* 1 1 even more conspicuous is that

Aristotle in the previous passage has just discussed the question whether *nous* can move things. The same point obviously also strengthens the link between *PA I 1* and our section in *Met. A 3*, where he is discussing precisely the role of *nous* establishing order and fineness in the cosmos.

However, the *PA I 1* passage is part of an argument – the overall strategy and details of which are matters of controversy – the conclusion of which is *final* causation in nature. More precisely, the conclusion is formulated in terms of two causes: the final cause and ‘the cause from necessity,’ which, if not identical with, is at least closely connected to, material causation. *PA I 1* thus makes explicit that focusing on the evidence of the orderliness and beauty of the cosmic arrangement and connecting it with the causal role of *nous* may be developed in the direction of the distinction between material and *final* causation, and not only as far as acknowledging an independent principle for the efficient cause. In a way, *PA I 1* stands to the second episode in *Metaphysics A 3*, as *Physics I* stands to the first episode. It draws attention to the fact that these important, but still partial, advances in the search for causes compelled by the phenomena contain in themselves considerations that mix in an inchoate manner more than one cause.

p. 115 Indeed, what we could suspect earlier becomes explicit in this paragraph. Those whose research was driven by a puzzle about the cause of the fine and good did not formulate their answers simply in terms of the source of motion; their most important result about the efficient cause seems almost like a by-product of this line of inquiry: ‘Those who took up the matter in this way thus stated that the cause of the fine state of things is a principle of beings, and at the same time that sort of cause from which the motion for beings stems’ To arrive at a clearer, more precise conception of the efficient cause would require explaining the relationship between these roles, i.e. the cause of the good on the one hand, and the source of change on the other. As we shall see, those who made undeniable progress by introducing a second type of causal principle failed to do exactly this work.

It is significant for the entire discussion that when Aristotle listed the four causes at the beginning of *A 3*, he already introduced the final cause by highlighting its relation to the efficient cause: ‘third, the source of the change, and fourth *the cause opposed to this*, that for the sake of which and the good, for this is the end of all generation and change’.<sup>11</sup> We shall see that the heroes of the second episode did not get clear about this connection, but identified the source of change with the cause of good and the good itself. They focused on the good, but understood it not as the goal and the opposite of the source of change, but as identical with the source of change.

Turning back to the text, in [2], we learn that the credit for introducing *nous* as a causal principle must go to Anaxagoras – or to Hermetimus. The way Aristotle presents the relationship between these two citizens of Clazomenae is to a certain extent analogous to the relationship he established between Thales and Homer a little earlier.<sup>12</sup> The view becomes explicit<sup>13</sup> in Anaxagoras’ book, but it might have been formulated first by Hermetimus.<sup>14</sup> The two cases, however, differ significantly. For Hermetimus is not one of the *theologoi*, writers of poems with mythological, theogonical content, but someone whom Aristotle would probably describe as a *mantis*. In the case of the *theologoi*, the question is whether the formulations in their poetic texts, available to both Aristotle and us, allow interpretations such as to warrant the attribution of physical doctrines to them, and if so, whether we can engage in a meaningful dialectical discussion with them. In the case of Hermetimus, by contrast, we possess no textual evidence, and neither apparently did Aristotle, so it is not even clear what it is that might make him the earliest propounder of the *nous*-view.

p. 116 According to our sources, Hermetimus, fellow-townsmen of Anaxagoras, was a mystic ecstatic with prophetic powers. Remarkably, most of our information about him is connected to the separability of his soul from his body. Heraclides Ponticus (*ap.* Diogenes Laertius vii 4–5 = fr. 89 Wherli) lists the name Hermetimus among the previous incarnations of Pythagoras between Euphorbus (from the time of the Trojan war) and Pyrrhus the Delian diver, from whom Pythagoras ‘inherited’ his soul.<sup>15</sup> However, this soul was able not only to take on successive bodies, but also temporarily to leave and then to return into a given body. Hermetimus’ mantic abilities were based on these soul-journeys, during which he could gather the required information even from far-away places. These trips went on until Hermetimus’ soul had no frame to return to because his enemies ganged up with his treacherous wife and burnt his body as it was lying dormant unattended by his soul. As a compensation, the people of Clazomenae erected a temple for him.<sup>16</sup>

On the basis of this body of evidence, Zeller thought that what makes Hermetimus relevant in *Metaphysics A* is the separability of soul: Hermetimus’ soul shows ontological independence from his body, just as Anaxagoras’ *nous* is separable and independent from the mixture. Most commentators, including Ross, follow Zeller’s suggestion.<sup>17</sup> The separability of the Anaxagorean *nous* is of course a crucial point, to which I

shall turn shortly, and it might well be that the feats of this local hero in separating his soul from his body may be part of the picture. Yet, whatever view about the separability of the soul one might attribute to Hermotimus on the basis of his soul-journeys, it will not in itself get us closer to the position in connection with which Aristotle invokes his name in the present context. ‘That *nous* is present, just as in animals, also in nature as the cause of the world-order and the whole arrangement’ is the statement to which the phrase ‘Hermotimus of Clazomenae is charged with speaking thus earlier’ refers back. The emphasis here is on the parallel between individual *nous* and cosmic *nous*, and their microcosmic and macrocosmic ordering functions, and not merely, and not even primarily, *nous*’ separability.

p. 117 Now, if a joint reference to Hermotimus and Anaxagoras in Iamblichus’ *Protrepticus* goes back to Aristotle, then we might be able to see more clearly why Aristotle could entertain the chronological precedence of Hermotimus also for the more specific view under consideration:<sup>18</sup>

Mankind possesses nothing divine or blessed that is of any account except what there is in us of mind and understanding (νοῦ καὶ φρονήσεως); this alone of our possessions seems to be immortal, this alone divine. By virtue of being able to share in this faculty, life, however wretched and difficult by nature, is yet so gracefully administered (ῥῆκο- νόμηται χαριέντως) that man seems a god in comparison with others. For mind is the god in us – whether it was Hermotimus or Anaxagoras who said so – and mortal life contains a portion of some god. (fr. 61 Rose = Iamblichus, *Prot.* 48.9–19 Pistelli)

Note first of all that the thesis that is attributable to either Hermotimus or Anaxagoras according to this text is not the same as the one in *Metaphysics A*. The thesis in the *Metaphysics* is that *nous* also has a *diacosmic* function, whereas the thesis here is that there is something divine in human beings, and this divine element is the *nous* in us. If Aristotle’s source<sup>19</sup> attributed to Hermotimus either of these, then the *Protrepticus* thesis seems the more plausible bet. The *Protrepticus* passage, however, constructs an argument around the thesis, without explicitly attributing the argument itself to either Anaxagoras or Hermotimus. The argument turns on *nous*’ function in providing order and arrangement: it is due to *nous* that our life is ‘so gracefully administered’, shows order and fineness. But if this is the reason for maintaining that *nous* is the divine element in us, then the one who held this view must have attributed the same ordering and administering function to the divine *nous* also at a larger, cosmic scale. So ↪ if Hermotimus thought that *nous* is the divine in us, he might have done so because he considered that *nous* is the god that operates, and arranges things, on a cosmic scale as well – a view that becomes explicit in Anaxagoras. On this reading, the connection between Hermotimus and Anaxagoras could be not merely the separability of *nous*, but also its ordering function at both the microcosmic and macrocosmic scale.<sup>20</sup>

Now whatever Hermotimus said or did, it is Anaxagoras who treated the question in an explicit way. Singling out Anaxagoras as a turning-point in the search for causes is, of course, an inheritance of the *Phaedo*. It is remarkable, however, that while these two texts, the *Phaedo* and *Metaphysics A*, have a central role in the construction of the modern conception of Presocratic philosophy, contemporary interpretations tend to reject the periodisation of these presentations.<sup>21</sup> For it is almost universally held nowadays that if there is a turning-point, then it comes with Parmenides; so much so that it is legitimate to speak about pre-Parmenidean and post-Parmenidean Presocratics. What is more, it is customary, at least since Zeller, to construe Anaxagoras’ *nous* as a response to the ‘Parmenidean challenge’: once Parmenides brought being to a halt, one needed something to set it in motion again, and this is why Anaxagoras introduced *nous*. This is of course connected to the question of the efficient cause in our passage, yet, once again, it is important to see that this is not the primary reason our text attributes to Anaxagoras for introducing *nous*. The primary explanandum in this phase is order and fineness, and not simply change and motion.<sup>22</sup>

But what about the cosmic perspective that, as I argued earlier, gets such an emphasis here? For Aristotle could not of course ignore the fact that pre-Anaxagorean thinkers were also engaged in cosmology. Yet, there still seems to be something special about the presentation of Anaxagoras even in this respect. Note for example that systematic questions pertaining to the overall cosmic order take centre stage also in the *Phaedo* only with the entrance of Anaxagoras. ‘What happens to things in the sky and on earth’ (τὰ περὶ τὸν οὐρανόν τε καὶ τὴν γῆν πάθη, 96b9–ci) were mentioned also earlier among Socrates’ original questions, but mixed with puzzles about a host of other phenomena pertaining to physiology, nutrition, psychology, growth, and mathematics. Remarkably, it is only after his encounter with Anaxagoras’ text that Socrates’ questions become ↪ focused on ‘what is best’; no less remarkably, it is also at this point that his attention is drawn to more precisely formulated problems about the overall structure of the cosmos and the order of

heavenly motions, in connection with the problem of how the 'best' can be manifested in the cosmic sphere. In this way the *Phaedo* itself might suggest the connection between Anaxagoras, methodological advance, questions pertaining to the overall cosmic order, and the good.

Aristotle also seems to recognise that Anaxagoras has a special position in this respect when he quotes Anaxagoras saying that one should live, rather than not being born, 'for the sake of contemplating the heavens and the whole cosmic order' (θεωρῆσαι τὸν οὐρανὸν καὶ τὴν περὶ τὸν ὅλον κόσμον τάξιν, *EE I 5*, 1216<sup>a</sup> 12–14).<sup>23</sup> This saying might give further underpinning to the impression that Anaxagoras, in Aristotle's eyes, was more consciously focusing on the orderliness of the heavens than his predecessors, and that this is what led to his results.<sup>24</sup>

In doctrinal terms, however, the most significant novelty of Anaxagoras, without doubt, resides in the fact that he explicitly stated that *nous*,<sup>25</sup> the origin of cosmic order, is an independent ultimate principle, distinct from material constituents, the mixture of the opposites and the homoiomers.<sup>26</sup> Indeed, Anaxagoras states at the beginning of B12 dk as plainly as one can expect that *nous* is separate from the mixture and that *nous*' effective power over the mixture depends on its not being part of the mixture;<sup>27</sup> this remains so even if it is far less transparent how exactly we should conceive this separation.<sup>28</sup> There is ample textual evidence that the connection between the distinctness of the ↪ Anaxagorean *nous* and its effective, motive power was fully recognised by Aristotle.<sup>29</sup> Aristotle clearly saw also that this is what guarantees not only that *nous* can act upon the mixture, but that this is always an asymmetrical relation: *nous* is what affects or moves others, but is never affected or moved by others. This is why it can function more properly as a source and principle of movement.<sup>30</sup> And this is also why those apparent heirs of Anaxagoras' *nous*, the *noêsis* of Diogenes of Apollonia and the *nous* of Archelaus of Athens, are not part of our story, in so far as the former got identified with air, whereas in the latter 'right from the beginning some mixture inheres'.<sup>31</sup>

Moreover, the Anaxagorean *nous* is not only distinct from the opposites and the homeomers, but also works on them as a conscious agent.<sup>32</sup> Now, it seems that in order to be able to get a clearer conception of the moving cause as an independent principle, one first needs to go through a stage in which efficient causation is conceived on the analogy of goal oriented agent causation and production. This is what we can see also in *Phys.* ii 3, and this is the direction in which the reference to the bed and the statue in the original puzzle, in what I called 'the first episode', could have pushed earlier thinkers. This clue was not taken up by them, but it was apparently Anaxagoras who reacted to it in trying to explain cosmic order. The agency model will become even more pronounced in Empedocles, where love and strife are often described as fullblown conscious divine agents with intentions. Empedocles' use of analogies from crafts (cf. the two painters in B23, the lamp in B84&86, etc.) are especially notable.<sup>33</sup>

Yet, from Aristotle's own point of view it is clear that trying to understand the source of motion simply and exclusively on the model of intentional agent causation necessarily leads to gross misunderstandings. Not every moving cause is a *nous*-like rational agent, just as 'it is absurd to suppose that purpose is not present because we do not observe the agent deliberating' (*Phys.* ii 8, 199<sup>b</sup> 26–28). But, yet again, properly to understand what it means that 'nature is like a doctor doctoring himself' (*Phys.* ii 8, 199<sup>b</sup> 0–32), to see what the analogy and what the ↪ disanalogy are, one has to be able to distinguish not only the doctor and the patient, but also to see how the doctor's art and the patient's health fit into the picture. For further progress one would need both a clearer conception of final causation, and also a clearer conception of the form.

#### b. A possible antecedent: *erôs*

[1] One might suspect that Hesiod was the first to search for such a thing, or someone else who put *erôs* or desire among beings as a principle, as also Parmenides did. [2] For this latter, in constructing the coming into being of the universe, says that first 'she devised Eros among the gods'.<sup>34</sup> [3] And Hesiod says 'First of all things Chaos came to be, and then | the broad-breasted Earth, and Eros, distinguished among all the immortals',<sup>35</sup> [4] as there must be some cause among beings to move and bring things together. [5] How these people should be ordered with regard to priority, let us be allowed to decide later. (984<sup>b</sup> 22–31)

The primary question concerning this passage is Aristotle's motivation for inserting the reference to Hesiod and Parmenides here. For in many ways, what we hear now seems to be at odds with both the general framework of the discussion and what we learnt about Parmenides a little earlier, i.e. that he might have posited fire as a surrogate for the efficient cause.<sup>36</sup>

Firstly, it is not entirely clear what the status of *erôs*, or Eros, is. For Aristotle is reviewing the principles, the primary, ultimate entities, of his predecessors. Up to this point Aristotle has only considered non-derivative entities that seem to belong to the original ontological furniture of reality in the respective systems. Eros, however, in both Parmenides and Hesiod does not belong to the first generation, as becomes explicit also in the very verses Aristotle quotes. It is all the more surprising, then, that in this case Aristotle does not just refer to a *doxa*, but gives quotations – something that he very rarely does in *Metaphysics A*.<sup>37</sup>

Secondly, when Aristotle mentioned Parmenides a little earlier, and said that he posited one principle, or possibly two – we understood the ‘two’ on the basis of parallel Aristotelian passages<sup>38</sup> and what we can independently know of the function of fire and earth in the *Doxa*. So, even if Aristotle ignored the fact that there is a ‘she’ who ‘devised’ *erôs*, and thus *erôs* is not an ultimate principle, the status and function of *erôs* with respect to fire and earth remains unresolved. This is especially so if fire can be used as that which has the nature of moving other things (χρῶνται γὰρ ὡς κινητικὴν ἔχοντι τῷ πυρὶ τὴν φύσιν 984<sup>b</sup>6–7).<sup>39</sup>

The connection between the insertion of Parmenides and Hesiod in the search for the moving cause and a matching passage in Plato’s *Symposium* has long been recognised.<sup>40</sup> Yet, the relevance of this parallel, it seems to me, has not been fully appreciated; indeed, the *Symposium* may help in answering the problems concerning the Parmenides–Hesiod passage I have just formulated. Moreover, it might bring back the question of the good and the fine that is apparently missing from the discussion of *erôs*.

The textual parallel comes from the very beginning of the first speech delivered by Phaedrus. What Phaedrus wants to establish first of all is that Eros is the oldest, or among the oldest, in the sense that he is part of the very first generation. In support, he points out that nobody has ever mentioned the *parents* of Eros, neither poets nor anybody else – not even those who say that Eros has come to be. This is the immediate context in which he quotes the same verses from Hesiod and Parmenides that Aristotle quotes in our passage. Now it is not implausible to interpret the point brought up by Phaedrus, i.e. that Eros has no parents, as a way of saying that Eros is not dependent in its being on any previous entity, and as such can be seen as a non-derivative principle.<sup>41</sup>

The old age of Eros established on the basis of consensus – ‘So it is widely agreed that Eros is among the oldest of gods’ – serves however only as a starting point for further inferences about him. Phaedrus first states that Eros, ‘being the oldest, is the cause of the greatest goods for us’ (πρεσβύτατος δὲ ὢν μεγίστων ἀγαθῶν ἡμῖν αἰτιός ἐστιν, 178c2–3), and then goes on to elaborate that Eros guides all those who want to lead a fine life (καλῶς βιώσασθαι, 178c6) and that without the feelings engendered by Eros no state or individual can achieve anything great or fine (μεγὰλα καὶ καλά, 178d3). By these elevated but somewhat rambling remarks Phaedrus introduces the central topics of the dialogue that Socrates will pick up and explore more fully – the relationship between *erôs* and the fine, and the way *erôs* can lead human beings to *eudaimonia*.<sup>42</sup>

Remarkably, what Phaedrus’ claims amount to is an answer to the question that led Anaxagoras to posit *nous*: what is ‘the cause of some things being in a good and fine state (εὖ καὶ καλῶς) and other things coming to be in such a state.’ Phaedrus, and arguably also the Socrates of the *Symposium*, would answer that *erôs* is such a cause. Now Phaedrus bases his answer on the evidence he takes from Hesiod and Parmenides, so it seems worthwhile to consider whether Hesiod and Parmenides had already introduced *erôs* as an answer to this question about the cause of good and fine things and states. If they did, they predated Anaxagoras in posting a principle that is the cause of good things and of motion in so far as it brings things together. What Aristotle does in our passage, I suggest, is to consider this possibility too.<sup>43</sup>

Aristotle however does not go any further here than stating that this certainly *is* a possibility. Indeed, the evidence seems insufficient to decide the question either way. For even if we accepted that Hesiod and Parmenides treated Eros as, at least in some sense, a primary being, and something active that draws things together, there is no indication that they connected Eros’ activities to the good and fine state of things, as those who spoke about *nous* more obviously did. So even if Hesiod and Parmenides conceived Eros as in some sense primary, and responsible for dynamism in the world, there is no hint that they accepted Phaedrus’ apparent *non sequitur* that ‘being the oldest, Eros is the cause of the greatest goods for us’. It is unclear whether they would agree that it was *erôs* who conferred order and fineness on inert constituents of the world, and thus whether their proposal should or should not be conceived as an answer to the question that motivated Anaxagoras’ inquiries. All in all, it remains unclear whether or not Parmenides and Hesiod are real competitors of Anaxagoras and Hermetimus.

Indeed, from an Aristotelian perspective, we may concur that *erôs* or appetite establishes connections between things, and by this connection things get moved; yet it is better to say that *erôs* and appetite specify a way in which things are related to one another so that one of the relata moves the other.<sup>44</sup> It may eventually turn out that *erôs* and appetite link things for the most part, or even systematically, in such a way that is beneficial for the things thus moved. Yet in order to see that, we should focus rather on the relata than on *erôs*. Thus, once again, and at least for the time being, it remains undecided whether or not those who speak about Eros thereby provided an answer to the question concerning the cause of motion and the good and fine.

At the end of the quotation from Hesiod, Plato cites only the beginning of the verse: ἦδ' Ἔρος. According to our text of the *Theogony*, verse 120 continues with the following words: ὁς κάλλιστος ἐν ἀθανάτοισι θεοῖσι. Plato has his own reason to omit the ending of the verse: he reserves it for Agathon to point out in his criticism of Phaedrus' speech that Eros is not only the youngest, but also the most beautiful and best of the gods (κάλλιστον ὄντα καὶ ἄριστον, 195a7). Aristotle completes the verse, but his memory apparently fails him; what he writes instead is ὁς πάντεσσι μεταπρέπει ἀθανάτοισιν.<sup>45</sup> I find the replacement of κάλλιστος, such a highly charged word in the context, most remarkable. I wouldn't, however, venture to say whether it is a Freudian slip or a conscious move to suppress a more explicit link between Hesiod's Eros and the fine.

p. 125 c. *The causes of good and bad things: love and strife*

[1] Yet as the contraries of good things were also perceived to be present in nature not only order and the fine, but also disorder and the base, and bad things more numerous than good, and ignoble things more numerous than fine – for this reason someone else introduced love and strife, as respectively the causes of these two kinds of thing. [2] For if one were to follow out and interpret Empedocles according to his intended meaning and not according to the childish inarticulate way<sup>46</sup> he expresses himself, one should find that love is the cause of good things, strife of bad things. [3] Thus, if one claimed that Empedocles in a way says, and was the first to say, that the good and the bad are principles, one would perhaps be right, in so far as the cause of all the good things is the good itself.<sup>47</sup> (984<sup>b</sup> 31–985<sup>a</sup> 10)

Anaxagoras came to posit *nous* as a cause and principle because he concentrated on what is eminently orderly and fine: the arrangement of the cosmos and the rational behaviour of living beings. By putting these phenomena in the spotlight, he may have ignored the darker side of reality, all that appears to be disorderly, base, and irrational in the world. Empedocles, by contrast, was more – and even excessively – sensitive to this aspect, and posited also an opposite principle to account for negative phenomena. This is why he posited a duo of principles. Thus even if there is not such a wide variety of *doxai* concerning this cause as there is for the material cause, we can still distinguish between one- and two-principle theorists.

Putting aside for a moment the question how far Empedocles' own solution was felicitous – he will be criticised in *Met.* Λ 10 for making the bad a principle (1075<sup>b</sup> 6–7) – his proposal was apparently based on substantial assumptions about causation, namely that contrary effects should be ascribed to contrary causes. Aristotle adds that the point that there is a systematic correlation between the two principles and the two types of effects does not come out in Empedocles' writings as explicitly as one could expect, but it is still the most plausible way to make sense of what he says. For on the one hand he clearly speaks in positive terms about one of the principles, and in patently negative terms about the other, and the very names he gives to them are strongly value-laden.<sup>48</sup> Parallel to this, he speaks about some things in highly elevated terms, whereas in speaking about other phenomena, his tone gets apocalyptic. Yet, he does not seem to be consistent in pairing the causes and the effects. He attributes some good things – most notably the structure of the cosmos – to the bad principle, while on the other hand the effects of the good principle do not always turn out to be good. Nevertheless, if there is any reasonable motivation for assuming such a duality of the causal principles, Aristotle claims, this must be based on the perceived duality of their effects. And in so far as there is at least an attempt to say that love is the cause of all the good things, and only the good things, it is perhaps not implausible to say that Empedocles was speaking about the good itself.

p. 126

Given that there is an at least implicit recognition of the fact in Empedocles' writings that a good cause brings about good effects and a bad cause brings about bad effects, we can identify here an inkling of a crucial feature of causation that interpreters sometimes call the 'principle of causational synonymy' The principle gets explicit in Plato, and constitutes a centrally important element of Aristotle's own account of efficient causation.<sup>49</sup> In Empedocles, the focus is still on good and bad, so it is not surprising that the scope

of application is limited to this dimension. Yet once we have recognised that only a cause that manifests a certain character can make it so that its effect acquires the same character, we are on the way to having a much better grasp of efficient causation.<sup>50</sup> However, in order to make more headway in this promising direction, one would, once again, need a much clearer understanding of the form: it is in respect of their relevant forms that efficient causes and their effects are systematically correlated.

The division of the moving cause, that will be highlighted also in the summary of Empedocles' originality at 985<sup>a</sup> 29–3i, may reveal an even broader problem that has been lurking in the background all along: when are we entitled to say that a thinker has found the efficient cause? From the way in which the discussion has been conducted thus far we could have the impression that the search is for one principle, say *nous* or *erôs*, which is *the* efficient cause, the ultimate cause of motion. From this perspective, Empedocles' positing two moving causes might appear as a diversion, for by positing two, he overlooked the fact that there should be a single cause, set over the two, which regulates their alternation. There is, however, another sense in which the efficient cause is not simply a unique ultimate cause of motion.

p. 127 The question we are considering is the problem of the unity of causes and principles that will be touched upon in *Met.* A 9, and will get a fuller treatment in  $\Lambda$  4–5.<sup>51</sup> The question is a difficult one, but the clue towards a solution comes from distinguishing the different senses of unity or identity: we can maintain that the efficient cause is one, yet it can be one in different senses. Using the results of *Met.*  $\Delta$  6, we can distinguish at least among (a) numerical unity; (b) generic and specific unity ranging over things that share the same nature; and (c) analogical unity constituted by a very general identity of analogical structures among things (the medical art is to health as the building art is to the house, and the father is to the son, etc; cf. *Met.*  $\Lambda$  4, 1070<sup>b</sup> 22–29).<sup>52</sup> Thus, we can say that one has found the moving cause if one found the various moving causes unified in at least one of these ways. Of course, now we are examining the way in which early thinkers used their ultimate principles as causes, and so it is likely that the focus will be on finding the moving cause in sense (a). Indeed, as *Met.*  $\Lambda$  shows, identifying the one ultimate moving cause is crucial for the whole enterprise, and perhaps even constitutes its ultimate aim. But in an important sense (c) is fundamental to the others. It is by understanding the general analogical structure that one understands what it is to be an efficient cause. Arguably, one cannot *really* find the one ultimate moving cause without understanding what it means to be a moving cause, so without understanding how a general causal structure applies in this specific case.

It seems that Anaxagoras posited the moving cause in sense (a), and possibly in sense (b), but not on the basis of an understanding of (c). Aristotle evidently thinks that the Anaxagorean *nous* introduced motion into the primeval motionless mixture.<sup>53</sup> In this sense, Anaxagoras found the moving cause in positing a numerically identical thing as the ultimate cause of all motion. Aristotle, however, also thinks – and with good reasons – that portions of the Anaxagorean *nous* function also in individual animals.<sup>54</sup> Indeed, establishing this connection between the functioning of *nous* at the cosmic and the individual level was the gist of the whole idea. If so, Anaxagoras posited the moving cause also in sense (b): the way in which the cause is the same over a genus or species. But he considered it only for one genus of beings, without recognising that the moving cause can be different in the cases of different genera.

p. 128 Viewed from this angle, we can also better appreciate the importance of Empedocles' introduction of a distinction. For if he posited two causal principles, such that one of them is the cause of good things and the other is the cause of bad things, both at the cosmic and the individual level, it also implies that the causes are related to their respective effects analogously. Love is to good things as strife is to bad things.<sup>55</sup> If so, Empedocles went some way towards finding out and applying the moving cause also in sense (c).

### 3. Critical assessment of these suggestions

#### a. General remarks

[1] These people then, just as we say and up to this point, got engaged with two of the causes<sup>56</sup> that we distinguished in our work on nature – i.e. with both the matter and the source of motion – [2] indistinctly however and in no respect clearly, [3] but acting like unexercised man in fights;<sup>57</sup> for these too often bring in nice blows as they circle around their enemies, but they do not do it on the basis of knowledge,<sup>58</sup> [4] just as these do not look like people who know what they say;<sup>59</sup> [5] for they evidently make practically no use of these causes, if not to a small extent. (985<sup>a</sup> 10–18)

This section serves as a conclusion to the preceding survey of the different formulations of the next cause, and as a general introduction to the subsequent more targeted criticism of Anaxagoras and Empedocles.

p. 129 The most momentous feature of the passage is that Aristotle here solidifies the results of the preceding discussion and states explicitly that the two causes that seized the attention of these thinkers, at least to some extent, are the matter and the efficient cause. To be sure, the ‘the second cause’ has been identified with the source of motion already at 984<sup>a</sup>27, at the beginning of the description of the ‘first episode’. Yet, as we have seen, the entire second episode revolved around the cause of good. This aspect became even more pronounced when Aristotle stated that one of Empedocles’ principles may be interpreted as the good itself. Now, considering that at the outset of the survey, Aristotle defined the final cause as ‘that for the sake of which and *the good*’ (983<sup>a</sup> 31–2), the reader might have thought that the thinkers of the second episode not only ‘got engaged with’ two of the causes, but – even if in an indistinct and incoherent way – also touched upon the final cause.

There is no explicit recognition of this aspect of the principles of Anaxagoras and Empedocles in A 4. It is only in A 7, in the summary of the entire historical survey, that Aristotle acknowledges that there is at least some restricted sense in which *nous* and love – now both identified as the good<sup>60</sup> – are relevant to the question of final causation; indeed from the entire early history of the search for causes these are the two most relevant cases. Of course, Aristotle also makes clear in A 7 that even if Anaxagoras and Empedocles tried to account for the goodness of things by positing good principles, or even the good as a principle, their principles do not function as final causes, because they are not ends, nothing happens for their sakes.<sup>61</sup> Aristotle can thus retain all the credits for the introduction of the final cause. Yet, if we relied exclusively on Aristotle’s conclusion in our passage in A 4, i.e. that ‘These people then [...] got engaged with *two* of the causes [...] i.e. with both the matter and the source of motion,’ the closing statement in A 10 that the predecessors spoke, at least in some sense, about *all* of the causes – thus also about the final cause – (καὶ τρόπον μὲν τινα πᾶσαι πρότερον εἶρηνται τρόπον δέ τινα οὐδαμῶς 993<sup>a</sup> 14–15) would remain largely unsubstantiated.

The way in which *nous* and love get arranged under the efficient cause might, I suggest, be compared to the end of *Phys.* ii 6, where Aristotle closes a lengthy discussion of luck and spontaneity by saying that ‘both belong to the mode of causation “source of change” ’ (198<sup>a</sup> 2–3). Now, no matter how confident this announcement may sound, it is far from clear that the preceding discussion entitles Aristotle to such a clear-cut answer. Indeed, some commentators have argued that chance belongs not to the moving, but to the final cause.<sup>62</sup> But it is only after that he has clearly and unambiguously assigned chance and spontaneity to one of the four causes that Aristotle feels himself entitled to assert a few lines later, at the beginning of *Phys.* 11 7, that ‘It is clear then that there are causes, and that the number of them is what we have stated’. For the whole lengthy discussion of chance and spontaneity was prompted by the widely held, and as it turns out basically correct, opinion that they are somehow causes – it is only through an integration of these possible claimants that Aristotle can consider it established, dialectically, that the four are sufficient and there is no need to add further causes.

This is very much what he is doing in *Met.* A 3–7 in general, and in the case of the principles of Anaxagoras and Empedocles in particular. In finding out what the principles and causes as ultimate subjects of wisdom are, Aristotle first imports the scheme of four causes as established in the *Physics*. The theory has shown its power by delivering adequate accounts of the relevant explananda (natural substances, artefacts, changes, etc.) in the domain of physics. As Aristotle is now moving on to wisdom, and considering its principles, he does not need to start from scratch but can already use his own four-cause scheme. The move is all the more justifiable as at this stage the relationship between wisdom and physics has not yet been clarified; physics might turn out to be wisdom, so that the principles of physics would also be the principles of wisdom. But in the next step Aristotle turns to examine whether there is anything among the opinions of those who were apparently engaged in the project of wisdom that could oblige him to consider further candidate causes, or introduce other changes in the scheme – just as he was doing with chance and spontaneity in the *Physics*. The outcome, once again, is that there is no need for any expansion or major modification, because all the claimants can be integrated into the framework.

All this needs, of course, a fair bit of interpretative work. Just as when one wants to see whether or not chance and spontaneity are extra causes on top of the four, one first needs to have a better grasp on what these two really are. The conclusion that ‘Both belong to the mode of causation “source of change” ’ is tied to, and dependent on, the immediately preceding sentence: ‘We have now explained what chance and what spontaneity is and in what way they differ from each other.’ Yet in working out what chance and what

spontaneity is, Aristotle can already refer to the four causes without a charge of circularity, in so far as the question was not whether or not these four are  $\hookrightarrow$  causes, but whether or not there are causes beyond these four. Similarly, in order to see whether or not the opinions of the predecessors put any pressure on the framework, we first need to have a better grasp on what their views really amount to. And in understanding their positions, and how they differ from one another, Aristotle can already rely on his understanding of the four causes without a charge of circularity, because, once again, what is to be seen is whether these views require any major modification of the framework that has already shown its strength. Indeed, he could not do so otherwise: in order to see what these positions amount to in relation to his scheme, he needs to understand them and interpret them in terms of that very scheme.

Moreover, the integration of chance and spontaneity in the *Physics* is not a simple matter of putting them in one of four boxes, because chance and spontaneity are not clear-cut cases. The examination reveals that we need to attach important qualifications and provisos – by reference to accidental causation – to their assignment to the efficient cause. Similarly, the assignment of the principles of the predecessors requires strong qualifications and provisos – ‘just as we say and up to this point’. In this case, however, the qualifications are necessitated not by the nature of the thing itself – how chance differs from clear-cut cases of efficient causation – but by the way the predecessors spoke about and used their principles: their inaccuracy, incoherence, and lack of explicitness, that they only ‘touched upon’ the causes without grasping them. But their inaccuracy does not merely consist in failing to make full use of their principles as causes, but also in failing clearly to delimit their causal roles. Fire is sometimes used not only as a material, but also as a *quasi* efficient cause, and, as we have just seen, the relationship between the good and the source of motion remains unexplained in the functioning of *nous* and love. Nevertheless, no matter how confused what they say is and how strong qualifications we must add – once we have shown that these claimants are not independent causes on top of the four, but on the other hand are still causes – we need to assign them to one of the four. And fire, all his purported motor functions notwithstanding, is still more a material cause, just as the Anaxagorean *nous* and the Empedoclean love, all their strong, albeit inexplicit relationship to the good notwithstanding, function more as sources of motion.

In any case, it is crucial to pay attention to the qualifications Aristotle attaches to the identification of Anaxagorean and Empedoclean causes. These qualifications sometimes become so strong that they seem completely to undermine the significance of the results. But just at the point where we would lose all faith in the achievement of these thinkers, Aristotle adds a further qualification by which he mitigates what he has just said and gives back a little bit  $\hookrightarrow$  from what he has just taken away. This is also what the image of the unschooled, but eager and not entirely unsuccessful, fighters tries to encapsulate. By the time we reach [5] of this section, all the ‘sobriety’ and ‘explicitness’ that we started out with seems to have melted away. These people don’t know what they are saying and it is manifest that neither of them makes basically any use of his principles – or perhaps just a little bit. The movement of.... *σχεδὸν... οὐθὲν... ἢ κατὰ μικρόν* at the end of the paragraph is highly characteristic of Aristotle’s whole treatment.

What the inexperienced fighters need are good teachers and trainers who can transmit to them the well-established art of fighting. This is precisely what the early thinkers missed. Their faults and missed opportunities can be put down to their inexperience. Yet, they are inexperienced not because they personally did not spend enough time with philosophical reflection. Their problem seems to be rather that they could not rely on the cumulative shared knowledge of the field and there was no one around them from whom they could really learn. It is because philosophy itself was still in its infancy that these thinkers expressed themselves like children.

In view of the fact that Aristotle strongly believes that the development of the arts and sciences is based on the accumulation of experience and knowledge in any given field, it is remarkable that we hear almost nothing in this chapter about an internal dialectic among the thinkers themselves. In a sense, we should not be surprised that these early generations could learn so little from one another. For the precision and the teaching power of knowledge, as Aristotle indicated earlier (*Met.* A 2, 982<sup>a</sup> 13), go hand in hand. If there were so much inaccuracy and inexplicitness in the doctrines of these people, small wonder that others could hardly build on them. And conversely, the apparent fact that these people were able to instruct one another to such a limited extent evinces that they did not possess real, well-founded knowledge. This may also help us understand why – if we can believe the testimony of Cicero<sup>63</sup> – Aristotle thought that the development of philosophy had become so rapid lately. As doctrines gain in precision, there is more and more to be positively learnt from them, and thus thinkers may rely more and more on their predecessors.

[1] For Anaxagoras uses *nous* as a *deus ex machina* for the making of the world, [2] for whenever<sup>64</sup> he is at a loss to say thanks to what cause something necessarily is the case, he drags *nous* in, but in other contexts he alleges as the cause of things that come to be anything else rather than *nous*. [3] And Empedocles, although he uses his causes to a greater extent than this one [i.e. Anaxagoras], [4] neither does so sufficiently [5] nor does he find any consistency in them. [6] At any rate, love in many cases segregates for him, while strife combines things. [7] For whenever the universe gets divided up into its elements by strife, fire gets combined into one, and similarly each of the other elements. [8] And whenever they come together again into the one under the influence of love, it is necessary that the parts get again segregated from each. (985<sup>a</sup> 18–29)

The remarks about Anaxagoras and Empedocles in this section give substance to the general point made in the previous paragraph to the effect that these people make no, or hardly any, use of their causes.

It is customarily held that Aristotle's criticism of Anaxagoras is basically the same as the one Socrates voices in the *Phaedo*.<sup>65</sup> There is of course no doubt that Plato's text is in the background; indeed the very claim that Anaxagoras made no use of *nous*, and that he *αἰτιᾷται* the material constituents of the mixture instead, are clear verbal echoes of the *Phaedo*.<sup>66</sup> Yet while Plato's primary concern is the lack of reference to the best, Aristotle's main point of criticism is the lack of systematicity in the application of *nous* as a cause.<sup>67</sup> So the problem is not only that Anaxagoras seems to explain phenomena by reference to the material components when he should have referred to *nous*, so that *nous*' causal role is diminished, but also that he uses *nous* as a wild card: he drags *nous* in whenever he is unable to explain a phenomenon. This haphazard application of *nous* can thus lead to cases where *nous*' role is not diminished but, on the contrary, gets unduly extended.<sup>68</sup> And in so far as there is apparently no systematic connection between the phenomena for the explanation of which *nous* is called in, beyond the fact that Anaxagoras is unable to account for them, *nous* as a cause loses its internal coherence. In a way even Hesiod fares better in this respect, if he uses Eros consistently in bringing together gods from the opposite sex to explain the appearance of new generations.

As [3] makes clear, Empedocles scores better than Anaxagoras also on this count.<sup>69</sup> And, as far as we can judge on the basis of the remaining fragments of both philosophers, we may agree that love and strife do more causal work than *nous*.<sup>70</sup> Empedocles thus uses his causes more than Anaxagoras, but still not to a sufficient degree. Indeed, Aristotle repeatedly complains that Empedocles leaves too much role for chance and material causation in explaining the origin and first constitution of living beings, as well as in physiology and embryology.<sup>71</sup>

If Aristotle only refers to the fact that Empedocles made insufficient use of love and strife, he elaborates more on his second point of criticism, i.e. that Empedocles was not even consistent in ascribing contrary effects to the two contrary causal principles. We have seen above that the most promising feature of the introduction of strife, and the ensuing diversification of the cause, is that it can direct attention to the systematic correlation between causes and their effects: good things are caused by a good cause, whereas bad things are caused by a bad cause. Here, however, Aristotle formulates his grievance not in terms of good and bad, but through the pair of aggregation and segregation. And in *Met. B 4, 1000<sup>a</sup> 18–<sup>b</sup> 21* he protests that Empedocles – 'whom one might suppose to speak most consistently' (1000<sup>a</sup> 25) – makes strife a principle of destruction, but still assigns to it a role in the generation of everything except the One (i.e., the *Sphairos*). What the differences between these formulations underline is that Empedocles does not only connect, albeit in a not sufficiently systematic way, the good cause with good effects and the bad cause with bad effects, but more generally was on to the principle which pairs contrary causes with contrary effects.

Yet, surely, what Aristotle seems to expect from Empedocles would actually be impossible to satisfy because there is no systematic correlation between generation, aggregation, and good outcomes on the one hand, and destruction, segregation, and bad outcomes on the other. So there is no way in which love could be responsible for one of these sets, and strife for the other. This consideration points to yet another problem. For, as Aristotle says in his sustained criticism of Empedocles in *GC 11 6*, even if Empedocles would have shown more constancy in assigning segregation, and only segregation, to strife and aggregation, and only aggregation, to love, he would still owe us an explanation of what is it in the nature or essence of strife to move things in *this* way, and of love to move things in *that* way (333<sup>b</sup> 22–25). This remark, once again, draws attention to what we have noted earlier: to make further progress on the question how things move other things, one should have a clearer conception of the nature and essence of things as well.

## 4. Empedocles' principles

[1] Empedocles, then, in contrast to his predecessors, was the first to distinguish this cause and introduce it,<sup>72</sup> making the principle of motion not one, but different and contrary ones; [2] moreover, he was the first to say that the kinds of matter, the so called elements, were four, [3] yet he does not use four, but as if these were only two, fire by itself, and the opposite ones – earth and air and water – as one nature. One may gather this by reflecting on his verses. [4] He then, as we say, spoke of the principles in this way and of this number. (985<sup>a</sup>29–985<sup>b</sup>4)

p. 136 This section, introduced by a  $\mu\acute{\epsilon}\nu$  οὖν, provides a conspectus of Empedocles' innovations. [1] states once again the novelty of distributing the role of the efficient cause among a duo of opposite principles, whereas [2] and [3] bring us back to the topics discussed in chapter 3, before Aristotle turned to the discussion of the principles distinct from the material principle. [2] boosts ↪ Empedocles' merits by reminding us of what we have already been told at 984<sup>a</sup> 8–9: he proffered the most advanced theory of elements when he added earth to the previous three. [3], on the other hand, attaches a rider explaining that Empedocles was not only a dualist concerning the efficient cause, but also a crypto-dualist concerning the material cause. The fact that he did not treat the four elements on an equal footing, but created an opposition among them by setting fire against the other three,<sup>73</sup> is further confirmation of the inconsistent use of his own results. The ensuing opposition not only compromises the four-element theory, but also evinces that Empedocles was falling back on the solutions of those who referred to the contraries within the material principle to account for change, and used fire and the hot as quasi-efficient causes (cf. 984<sup>b</sup> 5–8).<sup>74</sup> Empedocles thus still attributed motor functions to the material cause, and therefore did not sufficiently distinguish between the causal roles of different types of principle.

## 5. Leucippus and Democritus

p. 137 [1] Leucippus and his companion Democritus say that the full and the empty are elements, [2] calling the one 'what is', the other 'what is not', and of these the full and solid what is, the empty [and the rare<sup>75</sup>] what is not. [3] For which reason they say that what is no more is than what is not, because the void no less is than the body;<sup>76</sup> [4] these are the causes of things in the sense of matter. [5] And just as those who make the underlying substance one generate the other things by means of its modifications, positing the dense and the rare as the principle of these modifications, in the same way these people [i.e. Leucippus and Democritus] say that the differences are the causes of the other things. [6] Now they say that these are three: shape, order, and position. For they say that what is is differentiated by 'rhythm', 'contact', and 'turning' alone; and of these rhythm is shape, contact is order, and turning is position; for A ↪ differs from N in shape, AN from NA in order, and Z from N in position.<sup>77</sup> [7] But the question of motion, whence and how it can belong to beings, these people too neglected just about as carelessly as the others. (985<sup>b</sup>4–20)

This section provides important pieces of information concerning early atomism and has been mined for such purposes. What I am interested in now is not its value as a source for Leucippus and Democritus, but rather its position and function in the context of our chapter. And this appears problematic. As Ross puts it, 'The introduction of the Atomists here is somewhat confusing'<sup>78</sup> He then goes on to explain that the natural place of this section would be the discussion of the material cause, before the introduction of Anaxagoras' and Hermetimus' *nous*, given the fact that the atomists apparently only discussed the material principle.

There are of course reasons to think that the position of the atomists at the end of the chapter is not that surprising after all. First, there is the chronological consideration: the atomists represent the last phase of the inquiry-into-nature tradition on which A 3–4 has focused. Moreover, the treatment of the atomists is tightly connected to, and is hence prepared by, the previous paragraph summarising Empedocles' principles. For, as we have seen, the second part of that section has already brought us back to the question of the material principle by a reminder of Empedocles' theory of elements. Just as importantly, Empedocles was presented here as a dualist; not only as a dualist regarding the efficient cause, but also as a crypto-dualist in his use of the four elements. With the atomists, we have at the end of the line, real dualists, who posit two elements, the atoms and the void.<sup>79</sup>

Yet even if the position of this section is not as remarkable, it still does not appear to be the climactic coda one might have expected. The previous section emphasised the novelties of Empedocles' theory, which in a way presented the most advanced views concerning both the material and the efficient causes. This paragraph, by contrast, seems to present the atomists as a return to an earlier, or even to the earliest, stage of the story. The atomists are assimilated in  $\downarrow$  [5] to those who were trying to account for the generation of things in terms of rarefaction and condensation of a single substance, and the light-hearted negligence ( $\rho\alpha\theta\upsilon\mu\omega\varsigma\ \acute{\alpha}\phi\epsilon\iota\sigma\alpha\nu$ ) with which they treated the problem of motion looks much like the somewhat frivolous attitude of those early thinkers who 'were not at all annoyed by themselves' ( $\text{o}\acute{\upsilon}\theta\acute{\epsilon}\nu\ \acute{\epsilon}\delta\upsilon\sigma\chi\acute{\epsilon}\rho\alpha\nu\alpha\nu\ \acute{\epsilon}\alpha\upsilon\tau\omicron\iota\varsigma$ , 984<sup>a</sup>29).

This characterisation of the atomists as a seemingly retrograde lot becomes even more conspicuous when one compares it with other passages where Aristotle presents them in a considerably more favourable light. For in other texts, most notably in *On Generation and Corruption* 1 8, Aristotle acknowledges that the atomist theory is intrinsically dependent on Eleatic philosophy, and that the primary philosophical motivation of the atomists, and of the earlier Leucippus in particular, was exactly to rescue motion from the Parmenidean challenge.<sup>80</sup> The atomists can thus apparently be construed either as neo-Milesians or as post-Parmenideans, a theoretical double-sidedness, that the tradition translates into biographical terms: 'Leucippus of Elea or Miletus (for both are said about him).'<sup>81</sup> From our perspective, the crucial difference is that the Milesian Leucippus treats motion with light-hearted negligence, whereas for the Eleatic Leucippus, the observable motion and change in the world constitute the primary explanandum that motivates the daring move of asserting that 'what is' no more is than 'what is not'.<sup>82</sup> Moreover, in the *Physics*, Aristotle presents the atomists' void, equated with 'what is not', not merely as one of the opposite material elements, but as the necessary condition and, indeed, cause of motion.<sup>83</sup> In our passage, there is no sign of this connection between the void and motion.

On the whole, in GC i the atomist theory is presented not as a regression and an anti-climax, but rather as the culmination of physical inquiry. In GC i 2, Aristotle says that Democritus is the one philosopher who tried to give an analysis of growth and alteration, generation and destruction, action and passion in a serious way, while *all* the others dwelt on these questions only superficially. This is so because Democritus paid attention to empirical evidence and used a  $\downarrow$  methodology and argumentation proper to physical science ( $\text{o}\iota\kappa\epsilon\iota\omicron\iota\varsigma\ \kappa\alpha\iota\ \phi\upsilon\text{-}\sigma\iota\kappa\omicron\iota\varsigma\ \lambda\omicron\gamma\omicron\iota\varsigma$ , 316<sup>a</sup>12), which resulted in positing more adequate principles. And when Aristotle comes back to the discussion of the atomists in GC 1 8, in connection with the analysis of action and passion, he voices a similarly explicit praise, singling out the atomists as those who provided the best unified physical theory ( $\text{π}\epsilon\text{ρ}\iota\ \pi\acute{\alpha}\nu\tau\omega\nu\ \acute{\epsilon}\nu\iota\ \lambda\omicron\gamma\omega\ \delta\iota\omega\text{ρ}\acute{\iota}\kappa\alpha\sigma\iota$ , 324<sup>b</sup> 35–325<sup>a</sup> 1), which they achieved by positing a principle which is 'in accordance with nature' ( $\acute{\alpha}\rho\chi\eta\nu\ \text{π}\omicron\iota\eta\sigma\acute{\alpha}\text{-}\mu\epsilon\nu\omicron\iota\ \kappa\alpha\tau\grave{\alpha}\ \phi\acute{\upsilon}\sigma\iota\nu$ , 325<sup>a</sup> 3), and proceeding 'most of all by correct method' ( $\acute{\delta}\delta\phi\ \delta\acute{\epsilon}\ \mu\acute{\alpha}\lambda\iota\sigma\tau\alpha$ , 324<sup>b</sup> 35).<sup>84</sup> What is more, in GC 1 8, Aristotle piles all this praise on the atomists in a contrast with Empedocles' allegedly inferior account.

Surely, the relative evaluations and assessments of different thinkers and doctrines are always dependent on the dialectical and interpretative contexts in which they appear. Here, in *Metaphysics* A, the central question is the distribution of causal roles among principles, and it is in this respect that the atomists do not seem to offer anything new. So even if elsewhere Aristotle is ready to grant that motion was indeed a central concern for the atomists, what matters in the present discussion is that they did not care to explain the origin of motion in terms of a principle distinct from the elements. And as regards methods and attention to evidence, they apparently denied the relevance of precisely those considerations that led other thinkers to posit an independent principle as the source of motion and change. For, as we have seen, Anaxagoras and Empedocles were compelled to move forward in this direction by the recognition that the 'good and fine state' of things and the order of the cosmos cannot be ascribed to the effect of any of the material elements and that '[n]or again could it be right to entrust so great a matter to spontaneity and chance' (984<sup>b</sup>4–15). The atomists were blind to this truth. It is the markedly teleological perspective of the discussion of the cause of motion in *Metaphysics* A that renders the atomists' otherwise acknowledged concern with motion even more irrelevant.

Yet, our passage might still indicate in an oblique way the positive contribution of the atomists to the history of the search for causes. The novelty comes with the three-fold scheme of 'rhythm', 'contact', and 'turning', i.e. the theory specifying the way in which the differences function as the 'causes of things'. Now, these are not causes of things in the sense of either the material or the efficient cause. The atomist theory of differences is presented in our passage as a descendent of the monists' use of the opposites – a view that, as we saw earlier, is discussed in *Phys.* 1 4–5 in connection with the matter-form (-privation)  $\downarrow$  distinction.<sup>85</sup>

In *Met. H 2*, in the discussion of the relationship between form (actuality) and the differentia, the relevance of the atomists' three types of difference, now explicitly contrasted with matter, becomes even more pronounced; in that context, it is the only historical reference to introduce the topic (1042<sup>b</sup> 11–15).<sup>86</sup>

At this point we may return to the passage in *On the Parts of Animals* 1 1, that we considered at the beginning. We left the text where Aristotle introduced the two causes: the final cause and necessity (642<sup>a</sup> 1–2). He then goes on to emphasise the crucial importance for the natural scientist to recognise these two: 'Clearly, then, there are two sorts of cause, and first and foremost one should succeed in stating both, but failing that, at least attempt to do so; and clearly all who do not state this say virtually nothing about nature.' He next says that Empedocles at least had some inkling of this in so far as he 'occasionally stumbles upon this, led by the truth itself, and is forced to say that the substance and the nature is the *logos*, e.g. when he says what bone is' (642<sup>a</sup> 13–20, trans. Lennox, modified). Aristotle then adds:

One reason our predecessors did not arrive at this way is that there was no essence and defining substance. Democritus touched on this first, not however as necessary for the study of nature, but because he was carried away by the subject itself; while with Socrates interest in this grew... (642<sup>a</sup> 24–29 trans. Lennox, modified).

What Aristotle makes explicit in the first sentence is the point that has come up in our discussion on multiple occasions: no matter how important the results of Anaxagoras and Empedocles are, this avenue of research is blocked by the absence of a firmer grasp on substance, essence, and form.<sup>87</sup> And the first, unsystematic, stumbling moves in this direction may be ascribed to Empedocles, but even more so to the atomists. In this sense, Empedocles and the atomists may already point towards the topics discussed in the subsequent chapters of *Metaphysics A*.

On the whole, however, the atomists appear to be the main losers of *Metaphysics A*. It is remarkable that they never appear again in the later chapters; and at the very end of the book, when Aristotle turns to the early inklings of essence, he forgets them once again, and mentions only Empedocles' specification of the *logos* of bone.

## Notes

- 1 There is every reason to think that chapters 3 and 4 were originally conceived as a single larger unit. Editors and commentators regularly treat it as such. Translations of the section are freely based on Ross from ROT with constant consultation of Irwin and Fine (1995) and Bonitz. Translations of other Aristotelian passages, unless otherwise stated, are from the ROT with modifications.
- 2 The placement of the chapter division at 984<sup>b</sup> 23 is odd. Indeed, as Carlo Natali has noted, the transition between A 3 and 4 is the only case in the *Metaphysics* where Alexander does not start a new explanatory entry in his commentary at a point where we have a chapter division. If the motivation to divide A 3–4 into two was to ascribe a separate chapter for the second cause, then it should have come either at 984<sup>b</sup> 8 or at 984<sup>a</sup> 16. The most likely reason I can think of for starting a new chapter at 984<sup>a</sup> 23 is that Aristotle at that point reaches back to Hesiod as a possible *prôtos heuretês* of the second cause. On the other hand, not the entire chapter 4 is devoted to the second cause. At the end of the chapter, as we shall see, Aristotle turns back to the material cause.
- 3 Cf. also Barney's analysis of this part of the text in this volume, pp. 69–104.
- 4 Multiple references in our chapter to the *Physics*, most explicitly at 985<sup>a</sup> 12, indicates that Aristotle expects familiarity with this text.
- 5 *Phys.* 1 5, 188<sup>a</sup> 19–26: 'All thinkers then agree in making the contraries principles, both those who describe the universe as one and unmoved (for even Parmenides treats hot and cold as principles under the name of fire and earth) and those who use the rare and the dense... It is plain then that they all in one way or another identify the contraries with the principles'
- 6 Cf. *GC* 11 8, 335<sup>b</sup> 7–9: 'But the third principle [i.e. the efficient cause] must be present as well – the cause vaguely dreamed of by *all* our predecessors.'
- 7 These considerations may also help to understand the plural used in referring to the first episode: 'the principles of these kinds.' It is of course not the case that there were already more than one full-fledged Aristotelian kinds of cause distinguished in the previous phase, say the material and the efficient (an idea entertained also by Ross *ad loc.*), but that there were different attempts to identify principles in which different kinds of causes were mixed in an inchoate manner.
- 8 This is, by the way, what makes the atomist position even more absurd: they seem to accept that there is more than luck and material causation in the generation of living beings, but attribute the generation of the cosmos to luck. Lennox 2001, 145 raises doubts whether the reference is to the atomists in both *PA* 1 1 and the parallel text in *Phys.* 11 4, 196<sup>a</sup> 24–b5, but I don't find the arguments adduced conclusive. See also Hirsch 1990.
- 9 *Mete.* 1 1 339<sup>a</sup> 5–9. For an exegesis of the passage, and on the question why the examination of the cosmos has priority, see Burnyeat 2004, 13–24; Falcon 2005, 2–7; and Sedley 2007, 196–7.

- 10 The connection was noted by Sedley 2007, 194–5. Note also, that Xenophon also starts with artefacts, then moves to animals, and then to cosmic *nous*. See also Johnson 2005, 115–17 for the claim that the Xenophon passage is an important reference point for Aristotle in working out his own natural teleology. On the relationship between the *Memorabilia* passage and the *Philebus*, see also D. Frede 1997, 215.
- 11 I am grateful to David Sedley for emphasizing the importance of this passage. Also, in *PA* 1 1, before Aristotle reaches the conclusion concerning the two causes, i.e. the final cause and the cause from necessity, he has to say something about the relationship between that which is ‘productive of what comes from it’ and ‘that for the sake of which’.
- 12 See Barney, pp. 88–90 in this volume, with bibliography.
- 13 On the criterial role of clarity and explicitness, see Mansfeld 1986, 41–5.
- 14 The construction αἰτίαν δ’ ἔχει πρότερον looks very much like a pun.
- 15 Cf. also Porph., *VP*. 45; Hipp., *Philos.* 11 22.
- 16 Pliny, *Nat. Hist.* VII 147; Tert. *An.* 44; Plut., *De gen. socr.* 592C–E (Plutarch calls him Hermodorus of Clazomenae); Hipp. *ref.* p.7; Orig., *Contra Cels.* 3.3.32; Luc, *Enc. musc.* 7.
- 17 Ross 1924, 136, *ad loc.* Diels, *ad Anaxagoras* A58, followed by Dodds 1951, 143, suggested even that Anaxagoras could appeal to this local cult figure in arguing for his conception that *nous* is separable. This is of course pure speculation. See also Detienne 1964. Chroust (1972–1973) suggests that ‘the Greek king’ al-Kindi speaks about on the authority of Aristotle, and who was claimed to be able to prophesy on the basis of soul-journeys in cataleptic states (al-Kindi, *cod. Taimuiyye Falsafa* 55 = fr. 11 Ross), is to be identified with Hermotimus.
- 18 The authenticity of the reference to Anaxagoras and Hermotimus is in serious doubt. I therefore develop the following argument very tentatively. It might be doubted, first of all, whether the fragment as such goes back to Aristotle. As Carlos Steel has pointed out (i) no name as a source is mentioned in section 8 of Iamblichus’ text, and (ii) the language of the text might raise suspicion. Yet, as far as I can see, the linguistic consideration might not be sufficiently strong to discredit the fragment as a whole. The two major culprits appear to be the relevant usage of ὠκονόμηται and θνητὸς αἰών. Yet, the third-century Euphro already used the expression ὁ γὰρ τὸν ἴδιον οἰκονομῶν κακῶς βίον (fr. 4 Kock 1888), whereas the expression θνητὸς αἰών appears at least in Dionysius Halicarnassus 1 31.3.10 and 11 63.4.1 (true, not an early source). The relevant sense of αἰών is documented in poetic texts of the classical period (e.g. Soph., *Trach.* 34, listed in Lsj). Secondly, and more importantly, even if one accepts that the text goes back to Aristotle, if not in its wording at least in its content, one might still think that the reference to Anaxagoras and Hermotimus is an addition by Iamblichus; this is the view of most editors, e.g. Bignone, Düring, Verdenius, and Schneeweib. Others, e.g. Chroust *ad loc.*, and Hutchinson and Johnson 257–8 think that the reference to the two citizens of Clazomenae is also by Aristotle. Finally, the two Clazomenians are only credited with the bare statement ‘mind is the god in us’. So we still need the further assumption that the person who referred to the Clazomenians thought that they had held this view at least roughly for the reason expounded in this paragraph of the *Protrepticus*.
- 19 Heraclides or Hippias?
- 20 Note also that if what Aristotle had in mind was solely, or primarily, the separability of Hermotimus, soul, connected to his mantic and ecstatic activities, soul-journeys and incarnations, then there would be something deeply ironical in considering him as a possible candidate for being ‘the sober man’; but there does not seem to be any irony in Aristotle’s tone.
- 21 Cf. Laks 2006, ch. 1.
- 22 After I first wrote this paragraph, I was happy to find that John Palmer in his recent book (Palmer 2010, chs. 1 and 6) came to very similar conclusions from different considerations.
- 23 In Iamblichus’ *Protrepticus* (51.6–15 Pistelli) Pythagoras and Anaxagoras come up with similar answers. This aspect of Anaxagoras was emphasised in the biographical tradition as well. See e.g. the anecdote in D.L. 11 7: ‘When someone asked him, “Have you no care for your country?”, he replied, “Hush, I am very concerned about my country,” and pointed to the heavens’ (trad. Curd).
- 24 Note also that in *Met.* A 5 Xenophanes is credited with ‘contemplating the whole heaven’ which led him to theological results (986<sup>b</sup> 24–25).
- 25 On the assessment of Anaxagoras’ *nous* as compared to earlier views, see the classic series of studies by von Fritz 1945, 1946 and 1964, with important qualifications in Leshner 1995. On the originality of Anaxagoras, see also Laks 2002.
- 26 How these are related to one another is hotly disputed. For up-to-date reviews of the evidence and the literature, see Sider 2005 and Curd 2007 essays 2 and 3. Cf. also Curd 2007, 146–52 on Aristotle’s understanding of Anaxagoras’ theory of matter.
- 27 ‘While other things have a share of everything, *nous* is infinite and self-ruling, and has been mixed with nothing, but is alone by itself. For if it were not by itself, but had been mixed with something else, it would have a share of all things, if it had been mixed with anything. For there is a portion of everything in everything, as I have said before. And the things mixed with it would have prevented it so that it would rule nothing in the way it does being alone by itself’ (trans. Sider, modified).
- 28 It is a matter of considerable debate how far Anaxagoras went in positing something incorporeal. See e.g. Lanza 1966, 222–4; Renahan 1980; Sider 2005 and Curd 2007, 58–60.
- 29 See e.g. *Met.* A 8, 989<sup>b</sup> 15 and *DA* 1 2, 405<sup>a</sup> 16–19.
- 30 *Phys.* VIII 5, 256<sup>b</sup> 24–28.
- 31 Archelaus A4 DK = Hipp. *Ref.* 1.9.1.
- 32 B12, with its emphasis on the connection between *nous*’ γνώμη and universal knowledge of all ‘those that were, and are no longer, what are and what will be’, and the fact that ‘*nous* arranged all in order’ certainly goes in this direction. The

ambiguous status of *nous* between being an ingredient and a conscious agent working on other ingredients is brought out by Schofield 1980, 10–21; see also Menn 1995.

- 33 For an analysis of the craft aspects of both Anaxagoras' *nous* and Empedocles' love (and to a lesser extent strife), see Sedley 2007, chs. 1 and 11.
- 34 Parm. B13 DK. Aristotle's text, according to all the MSS, runs as πρώτον μὲν φησιν ἔρωτα θεῶν μητίσαστο πάντων. On the force of parallel texts in Plato, *Symp.* 178d; Plut., *amat.* 13 756E; Simpl., *inphys.* 39.18, reinforced by metrical reasons, scholars agree that Parmenides' text must have been πρώτιστον μὲν ἔρωτα θεῶν μητίσαστο πάντων. Cf. e.g. Coxon 1986, 243 *ad loc.* On this basis Ross emends Aristotle's text accordingly. I agree with Jaeger that this is unnecessary. It is a moot point whether πρώτον is then outside the quotation (what the typesetting in Jaeger's text suggests), and is Aristotle's paraphrase of πρώτιστον, or whether Aristotle meant it to be part of the verse, but quotes it imprecisely.
- 35 The verses are based on *Thg.* 116–120, but the quotation is incomplete and differs from our text of Hesiod. Aristotle gives 116 imprecisely, part of 117, omits 118 and 119. Then the last verse is complete, but differs in important respects from 120 as we know it. The complete passage in West 1966, runs as follows: ἦτοι μὲν πρώτιστα Χάος γένετ'· αὐτὰρ ἔπειτα | Γαῖ' εὐρύστερνος, πάντων ἔδος ἀσφαλὲς αἰεὶ | ἀθανάτων οἱ ἔχουσι κάρη νιφόνεντος Ὀλύμπου, | Τάρταρά τ' ἠερόεντα μυχῶ χθονὸς εὐρουδείης, | ἦ δ' Ἔρος, ὃς κάλλιστος ἐν ἀθανάτοισι θεοῖσι. Apart from the juxtaposition of the Parmenides and Hesiod passages, the incompleteness of the quotation has been an important clue to connect Aristotle's text with the *Symposium*, where, similarly, 116, part of 117 and part of 120 are quoted. On verse 120, see below.
- 36 For a thorough discussion of this and related questions, see Mansfeld 1985 b, 51–4 and Mansfeld 1986, esp. 41–6.
- 37 The only other instances are the brief quotations from Simonides and Solon in A 2.
- 38 *Met.* A 5, 986<sup>b</sup> 34 and *Phys.* 1 5, 188<sup>a</sup> 20–21.
- 39 It is not to say that the solutions to these problems are evident to us. Most scholars accept Plutarch's identification of the 'she' with Aphrodite (*amat.* 13 756E). A further move, explicitly made by Simplicius, consists in identifying the 'she' with the female governing divinity of B12 dk. This step is also usually accepted. It is a further question whether we can go on with the identifications. Some, e.g. Coxon 1986, 239–42 argues that the divinity is to be identified with the sphere of aither – this would be relevant to us for it would lead us back to fire as a cause of motion. But then again Eros would not be the ultimate source of motion. For other important reconstructions of the Doxa, see e.g. Bollack 1990 and Finkelberg 1986. For an up to date review of the literature (and the suggestion that the governing divinity of B12 dk is identical with the goddess of the Proem), see Drvota 2006, ch. 111.
- 40 Again, Mansfeld 1985a and 1986. Classen 1965 and von Kienle 1959 argued that the source is Hippias.
- 41 What about the feminine subject of the μητίσαστο in the Parmenides quote? The easier answer is that it would still not provide a *parent* for Eros – but that would still make it a derivative entity. A stronger answer could come from the construction that Stallbaum propounded. He argued that in the sentence as we have it in Plato – Παρμενίδης δὲ τὴν γένεσιν λέγει πρώτιστον μὲν ἔρωτα θεῶν μητίσαστο πάντων – the subject of μητίσαστο is τὴν γένεσιν. On this reading there is no suggestion of any previous god on whose activity the existence of Eros would depend; it would be just a figurative way of saying that Eros came into being by spontaneous generation. This is exactly what Phaedrus' argument requires. I find this suggestion quite attractive, even if none of the English translations I have consulted construes the sentence in this way. (For a similar construction, cf. *Phd.* 94d.) Note that the same construction works also for Aristotle's formulation.
- 42 Sheffield 2006, ch. 1.
- 43 Note also that Aristotle does not forget the cosmological perspective. Compare Plato's Παρμενίδης δὲ τὴν γένεσιν λέγει πρώτιστον μὲν κτλ. with Aristotle's καὶ γὰρ οὗτος κατασκευάζων τὴν τοῦ παντὸς γένεσιν πρώτον μὲν φησιν κτλ.
- 44 From the same perspective, one could also say that *erôs*, understood as a relation, cannot be prior to the relata, and therefore cannot be an ultimate principle.
- 45 According to West's apparatus, Aristotle is the only evidence for this version.
- 46 νείκει λυγρῶ. I agree with Menn (unpublished) that the reference is not to a speech defect in an adult (what the more usual 'lisping' conveys), but to the lack of articulation due to inexperience. The verb is explicitly connected to the indistinct way children first speak at *Met.* A10, 993<sup>a</sup> 15, but also e.g. in *HA* IV 9, 536<sup>b</sup> 8 and Plato, *Grg.* 485b–c.
- 47 As Ross 1924, 137 *ad loc.* suggests, the phrase καὶ τῶν κακῶν τὸ κακόν present in the MSS except A<sup>b</sup>, Alexander and Asclepius, was an additional remark, perhaps prompted by Alexander's comments. See also Primavesi pp. 440–3 in this volume.
- 48 Cf. e.g. B109.3 νείκει λυγρῶ; B115.14 νείκει μαινομένω; B117.8 and B26.6 νείκεος ἔχθει B117.19 νείκος οὐλόμενον B35.13 φιλόητος ἀμεμφέος etc.
- 49 On how the principle appears in Plato in general and is worked out in the *Phaedo* in particular, see Sedley 1998. More generally, see Makin 1990–91.
- 50 Cf. e.g. *Met.* Λ 3, 1070<sup>a</sup> 4–5.
- 51 The material in Lambda has been illuminatingly discussed by Crubellier 2000. My remarks about Anaxagoras and Empedocles are inspired by his analysis.
- 52 Focal unity is added to this list at *Met.* Λ 4, 1071<sup>a</sup> 1–2 and 1071<sup>a</sup> 34–35.
- 53 *Phys.* VIII 1, 250<sup>b</sup> 24. There can actually be some doubt whether Anaxagoras thought that the mixture was immobile; see Hussey 1972, 140 and Schofield 1980, 154.
- 54 In *DA* I 2, 404<sup>a</sup> 25–405<sup>a</sup> 15 Aristotle complains that Anaxagoras did not clearly distinguish soul and *nous* and thought that *nous* is a principle of all kinds of motion also in non-rational animals.
- 55 There is good evidence that Empedocles was highly sensitive to functional analogies, and that Aristotle appreciated this. In *Mete.* IV 9, 387<sup>b</sup> 1–6 he remarks upon Empedocles' point about the crossgenus analogy among hair, leaves, and feathers and in *GA* 1 23, 731<sup>a</sup> 4 about the analogy that connects egg, olive, and foetus.
- 56 Following the reading of α, δεῦν αἰτίαι ἐφήψαντο.

- 57 It is attractive to take the fighters to be boxers, πύκται, and the fight to be a πυγμαχία (cf. Irwin and Fine), but I couldn't find any strong confirmation for the point. (On boxing, with many nice illustrations from vase paintings, see Miller 2004. For the importance of practice and training in boxing, serving as an analogy for the importance of military education, see Plato, *Laws* 830a–c.) It is also conceivable that the image of the inexperienced fighters picks up the possible, although by no means evident, martial connotations of the expression by which Aristotle introduced his predecessors at A3: εἰς ἐπισκεψιν τῶν ὄντων ἐλθόντας (983<sup>b</sup> 1–2). This would then be the fight in which the Eleatics get defeated: ὥσπερ ἡττηθέντες ὑπὸ ταύτης τῆς ζητήσεως (984<sup>a</sup> 30–31).
- 58 Ross' 'they do not fight on scientific principles' seems too strong. For why should even the best trained fighter fight on scientific principles? As the parallel occurrences show, the phrase ἀπὸ ἐπιστήμης does not need to be connected to properly scientific principles, but can refer to experience-based technical knowledge. (Cf. e.g. *EE* VII 13 (VIII 1 Susemihl), 1246<sup>a</sup> 38 ἀνοοεῖν ἀπὸ ἐπιστήμης deliberately writing incorrectly, using one's hand as a foot in dance.) For boxing and wrestling involving ἐπιστήμη, see *Cat.* 8 10<sup>b</sup> 3–5.
- 59 Keeping the reading of α possibly without the λέγειν after εἰδόσιν as suggested by Jaeger.
- 60 Cf. also *Met.* Λ 10, 1075<sup>b</sup> 8–9.
- 61 See Menn's discussion in this volume pp.209–10.
- 62 See e.g. Judson 1991, 79–80.
- 63 Cic. *Tusc.* 111 28.69 = Arist. fr. 53 R<sup>3</sup>.
- 64 Retaining the reading of α.
- 65 See e.g. Ross 1924, 137 *ad loc.*
- 66 Cf. Plato, *Phd.* 98b8–c2: τῷ μὲν νῶ οὐδὲν χρώμενον οὐδέ τινας αἰτίας ἐπαιτιώμενον εἰς τὸ δια-κοσμεῖν τὰ πράγματα, ἀέρας δὲ καὶ αἰθέρας καὶ ὕδατα αἰτιώμενον καὶ ἄλλα πολλὰ καὶ ἄτοπα.
- 67 The lack of systematicity in using *nous* as a cause is highlighted in other Aristotelian texts as well. The cosmogonic function of *nous* is considered untenable both because it is impossible to posit a very first change and because singling out a certain moment in time for the first change after an infinite period of rest would be completely arbitrary, involving no order (μηδ' αὖ τινα τάξιν ἔχειν, *Phys.* VIII 1, 252<sup>a</sup> 16). Just as importantly, if *nous* is an ultimate principle and a cause with a certain nature, it is absurd to say that it exerted its causal efficacy on a single occasion (ἄπαξ, *Phys.* 1 4, 187<sup>a</sup> 25 and *Phys.* VIII 1, 252<sup>a</sup> 7–19). *Nous*' effect should be continuous, with no beginning and no end. At *Met.* Λ 6, 1072<sup>a</sup> 5–6 Aristotle says that 'That actuality is prior [to potentiality] is testified by Anaxagoras (for his *nous* is actuality), and by Empedocles in his doctrine of love and strife.' But *nous* seems to have spent half of eternity as potentiality.
- 68 Cf. e.g. the point raised in *DA* 1 2, 404<sup>b</sup> 1–5: Anaxagoras seems to ascribe *all* kinds of motor and even vegetative functions to *nous*, not distinguishing it from soul (cf. *PA* 1 1, 645<sup>a</sup> 33–<sup>b</sup>9). Menn (unpublished) raises the intriguing suggestion that there might be a systematic connection between the cosmic and the vegetative functions of *nous*: in nutrition homeomers get separated out and join the respective parts of the organism.
- 69 This point provides further support for taking the infamous τοῖς δ' ἔργοις ὕστερος at 984<sup>a</sup> 13–14 as expressing a comparative value judgement about Anaxagoras.
- 70 This is most notable in zoogony. Empedocles not only gives a more intricate account of the appearance of animal – and presumably plant species, but he also connects the stages of this development more closely to the activity of love and strife. The details are of course hotly debated, but the contrast with Anaxagoras is clear. That *nous* has only an indirect role in the generation of animals and plants becomes more pronounced if we understand the 'seeds' in the primeval mixture to be seeds of biological species (so Furley 1976, Schofield 1980, and most recently Sedley 2007, ch. 1, §5.). In this case, *nous* only provides, through initiating the rotation, the conditions of possibility for the appearance of living beings from the seeds (cf. Sedley 2007).
- 71 Cf. e.g. *Phys.* 11 8, 198<sup>b</sup> 29–32 (coming together of limbs); *Phys.* 11 8, 199<sup>b</sup> 7–13 (if human faced ox, why not also olive-faced vine); *DA* 11 4, 415<sup>b</sup> 28–416<sup>a</sup> 2 (the direction of the growth of plants); *PA* 1 1, 640<sup>a</sup> 19–20 (structure of the backbone); *GA* IV 1, 764<sup>a</sup> 1–5 (differentiation of sex in the womb); *GA* 11 8, 747<sup>a</sup> 24–<sup>b</sup> 3 (the sterility of mules); *GC* 11 6, 333<sup>b</sup> 3–16 (coming to being is the effect of the elements come together in specific proportions).
- 72 Retaining the reading of α: ταύτην τὴν αἰτίαν διελῶν εἰσήνεγκεν..
- 73 Cf. *GC* ii 3, 330<sup>b</sup> 19–21. What Aristotle primarily could have in mind is the way in which the sexually undifferentiated creatures are born from the earth thrown up by the fire which had been caught up in the depth of earth, and which was now, due to the growing dominance of strife, on the way to join the sphere of fire in the heavens. Cf. B62 DK.
- 74 Ross 1924, 135 *ad loc.* argues against Bonitz that the reference at 984<sup>b</sup> 5–8 is not to Parmenides, but specifically to Empedocles. I am not convinced. At any rate, Theophrastus also understood Parmenides along these lines as his assertion quoted and followed by Alexander in his commentary on the present passage shows:... δύο ποιῶν τὰς ἀρχάς, πῦρ καὶ γῆν, τὸ μὲν ὡς ὕλην τὸ δὲ ὡς αἴτιον καὶ ποιοῦν. Alex. *in metaph.* p. 31, 7 = Theophr. fr 6.
- 75 The expression in square brackets are present in α but are missing from β. In this case, there are philosophical reasons to prefer the β reading, cf. Primavesi p. 446 in this volume. The reason for the addition, I suspect, is not so much the rhetorical need for a second term, but rather an attempt to keep the parallel between the monists who produce their contraries by condensation and rarefaction.
- 76 Retaining the reading of the mss. with Jaeger.
- 77 Retaining the letters Z and N of the Mss with Jaeger, as opposed to the two positions of H as suggested by Wilamowitz, followed by Diels and Ross.
- 78 Ross 1924, 139.
- 79 On the atomists, seen as dualists, by Aristotle, see e.g. Schofield 2003, 66. This characterisation contrasts with the one according to which the different types of *atoms* are the elements and the material causes. See e.g. Theophr. *ap. Simpl. in phys.* 28.15 where the atoms are treated as matter and *Simpl. in phys.* 28.4 where the atoms are the elements. Cf. Morel

1996, 51 n. 21. Note also that in the examples that serve to elucidate ‘rhythm’, ‘contact’, and ‘turning’ in our passage, the atoms, and only the atoms, are treated as *stoicheia* (in the sense of letters).

80 Incidentally, this is a further indication of the fact that Aristotle downplays the dialectical interaction among his predecessors in A3–4. For a close reading of the passage in *GC* 1.8, see Hussey 2004, 249–61. For a recent interpretation of the atomist reaction to the Parmenidean challenge, see Graham 2006, ch. 9.1–2.

81 *Simpl. in phys.* 28.4 = *Theophr. phys. op. fr.* 8.

82 *GC* 1.8, 324<sup>b</sup> 35–325<sup>a</sup> 17; cf. *Phys.* IV 6, 213<sup>b</sup> 4–6 and IV 8, 214<sup>b</sup> 28–29. Of course, from an Aristotelian perspective, the void would actually render motion impossible, yet the Atomists don’t get chastised for positing it in *GC* 1.8; Hussey 2004, 252 even suggests that the void is in some sense ‘the hero of the story.’

83 *Phys.* IV 7, 214a24–25: αἴτιον δὲ κινήσεως οἴονται εἶναι τὸ κενὸν οὕτως ὡς ἐν ᾧ κινεῖται. The other candidate for the Atomists’ cause of motion is the collision of atoms, cf. *Alex., in met.* 36.21 and *Simpl., in phys.* 42.10. Yet collision produces forced motion and cannot be a source of natural motion, cf. *DC* 111 2, 300<sup>b</sup> 9–17.

84 For further comments, see Hussey 2004, 253.

85 It is remarkable that in that context, where the emphasis is on the opposites, Aristotle construes the three types of difference, ‘rhythm’, ‘contact’ and ‘turning’, in terms of contraries, see *Phys.* 1.5, 188<sup>a</sup> 22–26.

86 I am grateful to Christof Rapp for emphasising the importance of this passage.

87 Cf. also *Phys.* 11.2, 194<sup>b</sup> 9–11.